

the plant under discussion, and this is very useful; not every one knows off-hand that "*Kafurkachri*" = *Hedydium spicatum*, or that "*Pinée*" = *Strophanthus hispidus*. Of course these are omissions we do not find in Mr. Kurz's book on the Bamboo, mentioned above; the volume on the "Eatable Funguses of Great Britain," illustrated by Mr. W. G. Smith, is not referred to, although Mr. Badham's "Esculent Mushrooms" is mentioned; while on the other hand such books as Loudon's "Hortus Britannicus" seem hardly to deserve a place. The Index, to which reference has already been made, is all that an index should be, and fully justifies Mr. Jackson's belief that "these entries supply a very fair starting-point for almost every question in vegetable technology."

Space will not allow us to enter further upon the merits of these Guides. Enough has, however, been said to direct attention to their importance and practical utility, and to encourage the happiest auguries for the success of the *magnum opus* upon which Mr. Jackson is at present engaged.

JAMES BRITTEN

OUR BOOK SHELF

Talks about Science. By the late Thomas Dunman. (London: Griffith and Farran.)

UNDER an unpretending title are here collected a number of lectures that were delivered to popular audiences, chiefly in and about London, by one whose decease, recently, in the early prime of life, has been much deplored. At the time of his death, Mr. Dunman held a post of tuition in Physiology and Animal Morphology in the Birkbeck Institution, and his labours there and elsewhere were attended with growing popularity and success. The biographical sketch by his friend, Mr. Charles Welsh, with which the book opens, tells of the zeal and well-directed energy with which he applied himself to overcoming the obstacles that for some time barred his path to what he considered his true life-work, viz. the teaching of science. These lectures—thirteen in number, deal with a considerable variety of topics, the mechanism of sensation, the star-lit sky, prehistoric man, volcanoes and coral reefs, atoms and molecules, and so on. The style is terse and lucid, and appears to have been carefully formed on the best models. The happy gift of relieving the strain of which many minds are conscious under mere scientific exposition, by some passing allusion to a familiar human experience, by the homely figure, the apt quotation, the play of imagination and humour, Mr. Dunman seems to have possessed in rich measure.

The lectures entitled "Two Life Histories" and "How the Earth is Weighed and Measured," may be taken as good examples of abstruse matters expounded without technical language, and made clear for a working-class audience. Mr. Dunman's going down a coal-pit in order to qualify himself more thoroughly for his lecture on "Coal," is typical of much of his work, which in this respect (the "testifying that which he had seen") manifested, no doubt, the inspiration of his admired teacher, Huxley. Exception might be taken to a few passages in the lectures, e.g. to the account of ocean temperatures, in "Depths of Ocean" which seems inadequate; and occasionally the author seems to affirm more confidently than the facts warrant. But as a whole the book is a good specimen of sound popularised science, and eminently engaging. As a present to a young artisan with a nascent love of science, it could not fail to be much appreciated.

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.]

[The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.]

The "Eira" Arctic Expedition

I AM confident that the anticipation, contained in your article on Mr. Leigh Smith's expedition (p. 387), that he has been able to make some addition to our knowledge of geography, has been realised.

The object of Mr. Leigh Smith's voyage was a reconnaissance to accumulate evidence respecting the advantages offered by Franz Josef Land as a base of operations for future exploration. He did not intend to winter; but the accident which forced him to do so had the useful result of enabling him to extend his valuable observations over two seasons. The knowledge he thus acquired of the movements of ice, of its character along the shores and in the fiords for sledging purposes, of the prevailing winds and currents, of the amount of animal life to be obtained in the different months, will be very useful. This knowledge will be welcomed by the geographical student, and will also be of great value to future explorers. The loss of natural history collections is to be regretted, but the main object of Arctic exploration is geographical, and that object has been fully secured.

The crew of the *Eira* passed through the winter in perfect health. Yet they had no lime juice and, from want of warm clothing, comparatively little exercise during the coldest period. This fact must modify the theories based on the report of the Scurvy Committee. Here we have additional proof that it is fresh meat, and not lime juice, which is the chief preservative of health.

Another interesting point which the cruise of the *Eira* will throw further light upon, is the direction from which the ice-bearing currents come. In a former letter I called attention to the evidence of Sir Edward Parry on this point, and to the fact that his conclusions had been corroborated by subsequent observation. Mr. Leigh Smith's voyage will furnish additional evidence upon this geographical question. As regards the advantages of Franz Josef Land as a base for future discovery, Mr. Leigh Smith has shown that in 1881 and in 1882 that land could easily be reached; so that we now have proof that in five consecutive years Franz Josef Land was accessible, that it has suitable bays for winter quarters, that the shore-ice in the fiords offers good sledging surface, and that there is abundance of animal life. Mr. Leigh Smith's voyage will be found to have been most useful to geographical science, and fully to have secured the object of a reconnaissance, for which it was undertaken.

CLEMENTS R. MARKHAM

21, Eccleston Square, S.W., August 28

Markree Magnetic Dip

I HAVE made the following determinations of the magnetic dip by aid of one of Dover's excellent Kew-pattern dip-circles (No. 67). As I am observing on a pier in the open air I am not able to always use both needles simultaneously. On August 1 I observed within a few feet of the wall of the meridian-room. The other observations were made at a distance of over 100 feet from any wall:—

Date.	Time.	Dip.	Needle.
	h. m.		
1882 August 1	1 47 p.m.	[70° 26' 50"]	No. 2
" 2	4 2 "	27 38 "	" 2
" "	5 2 "	25 16 "	" 1
" 3	2 50 "	26 27 "	" 1
" "	3 56 "	27 37 "	" 2
" 15	5 22 "	26 8 "	" 1
" 16	3 32 "	26 58 "	" 2
" 21	1 37 "	25 37 "	" 1
" "	3 0 "	25 1 "	" 2

Prof. Lloyd determined the magnetic dip at this place forty-seven years ago on the same date as follows:—

1835, August 21 ... 2h. 22m. 72° 4' 48".

Comparing this with the dip $70^{\circ} 25' 19''$ to day, I find for the annual decrease, $2''.117$.

W. DOBERCK

Markree Observatory, August 21

The Gesture Speech of Man

The valuable paper of Col. Mallery (*NATURE*, vol. xxvi. p. 333) is deserving of much attention, but his description of the relations of gesture-language and speech-language is calculated to cause misconceptions, on account of the view he has taken of the origin and propagation of speech. Admitting the general accuracy of his description of the gesture-language or dialects of man, then that description is really applicable to speech.

Setting aside all theories and looking at facts, all spoken languages have psychological relations, as gesture-languages have, and in their early stages are founded on the same principles of having several representations for one idea, and several ideas for one representative sign. With regard to sounds applied as representative signs, as a general law these are the same for all languages, and the diversity observable arises from the diversity of selection and distribution.

It can be seen by the commonest observer that among the remotest languages there are like words, but as it is assumed they cannot be related, these identities are put down to chance and disregarded. On the other hand, many are led astray by such identities to set up relationships and to form schemes of classification between languages, which are not justly admissible. Nothing has been more ridiculed than the identities of words set forth between Quichua, for instance, and various languages of the old world, and yet nothing can be more just than the identities, which speak for themselves to the unprejudiced.

A great argument against the relationship of languages has, on the other hand, been derived from the diversities which are equally apparent as the identities among such languages, and the supposed negative evidence derived is used as conclusive against any relationship.

The phenomena are very complicated, as are the phenomena of gesture-language, but the solution is to be found in those remarks of Mr. A. R. Wallace, of which I have given the application as the Wallace formula (*NATURE*, vol. xxiv. pp. 244, 380). I repeat this, because further observations and a long course of investigation leave no doubt as to the facts and their application.

Proceeding on the basis of a system of sign-languages generally existing in the world, we obtain the explanation of the engrafting of sounds in defined series. Mr. Wallace's labial for mouth, nasal for nose, and dental for tooth, provides labials for every idea based on the round form of mouth, or on its opening and closing, as head, face, eye, ear, sun, moon, egg, &c. These, again, were in relation with defined mythological and numeral characteristics, affording abstractions.

Thus, a whole apparatus of speech was provided, but it was complicated first by the condition, imparted from gesture language of plurality of signs, and next by the faculty of applying various labials, &c. What Col. Mallery states to have taken place in gesture language is precisely that which took place in speech language. In the process of selection, the apparatus of each class was ultimately diminished so far as the common stock was concerned, and each language acquiring only a portion of the common stock, has at present the appearance of a separate and indiscriminate vocabulary in relation with all, but not identical with any except its own immediate congeners.

Thus the effective comparative philology of any language ultimately depends on its relationship to all, and not to one family.

As all speech languages are of common origin, so we must admit a common diffusion of them over the world. The result is seen in the relationships of the languages of America with those of Africa, for instance, but it is attested by a community of verbal forms in traditions and in mythology, and even in geographical nomenclature. It is the traditions of this diffusion of speech which underlies many of the deluge legends.

The epoch of this diffusion is sufficiently clear, for the words widely distributed show that it was in an epoch of considerable culture.

Col. Mallery accurately states that there is a relationship between the gesture languages and some of the ancient characters, and this supposes that characters may have co-existed with gesture before the diffusion of spoken languages. Admitting this, we have to regard not only the relations between gesture

and speech languages, but between the characters and speech and the manner in which characters were applied to the spoken languages, and modified by them.

Among my later investigations have been those relating to the applications of Mr. Wallace's formula to characters, syllabaries, and alphabets. It may be remembered that one means by which I was enabled to apply Mr. Wallace's remark was by means of previous observations on the $\bigcirc$ and $+$ series in the Chinese and other ancient characters. Speaking concisely we have for labials $\bigcirc$, $(\bigcirc)$, $\odot$, C , Θ , ϕ , &c.; for nasals (which are male) $+$, $\times$, T , $\div$, N , N , N , &c.; for dentals, $\wedge$, Δ , $\uparrow$, &c.

If we examine a syllabary or alphabet, more particularly one of ancient form, then we shall generally find that the labials, &c., conform. They are, however, besides translations of the original word, subject to interference, because where the general idea involves a labial, the labial may have been excluded by a dental. Doorway is a labial, but door, as in English, a dental, doorway being taken from the mouth, and the door from the teeth within, and although the words are distinct in many languages, yet in some one only has survived. The character for mountain, country, &c., is tooth, Δ or $\triangle\triangle\triangle$, but other relations for mountain are navel, drum.

In its application for the examination of characters this Wallace formula is very useful. Thus the Korean conforms to it, and the Vy or Vy, supposed to be modern, conforms to a test of antiquity.

Nothing can be more true than Col. Mallery's description of the rapidity of gesture-language. Any one who observes the mutes of the Seraglio at Constantinople, who in my opinion transmit the system of the ancient pantomimes, will at once perceive how quickly thought is portrayed under conventional representations. Much of their conversation is naturally on political topics, and they have not only signs for each individual, but it is reputed for each city of the empire, as they undoubtedly have for foreign countries. Incidentally I may mention that they apply lip-reading for giving names, as in all probability they have for centuries.

Col. Mallery supposes that gesture-language in its present shape originated spontaneously and sporadically, but in legend there is the suggestion of a diffusion of gesture-language as of speech. Thus we have two epochs in tradition, that of creation, and that of the propagation of speech, which appears under the form of the deluge traditions. Some interesting illustrations of the whole matter will be found in Mr. Man's monograph of the Andamanese, now being published by the Anthropological Institute.

With the great advantages of gesture-languages, Col. Mallery has not explained how they have succumbed to speech-language, nor is his suggestion of their value as a common language among spoken dialects adequate. Where a speech-language becomes a common language it also extirpates the sign-languages, and a great language swallows up the numerous smaller brood. Europe was at one time as thick with languages as North America or Africa, and now a few of one family dominate.

32, St. George's Square, S.W.

HYDE CLARKE

Orange Culture in Florida

IN reply to the inquiry in your columns regarding orange culture in Florida, I venture to recommend an agreeably written account of that State, entitled "Florida: for Tourists, Invalids, and Settlers; containing Practical Information regarding Climate, Soil, and Productions; Cities, Towns, and People; the Culture of the Orange, and other Tropical Fruits; Farming and Gardening; Scenery and Resorts; Sport; Routes of Travel, &c.," by G. M. Barbour (New York: Appleton and Co., 1882.) I had this volume in hand during a stay of a few days in Florida last May, and found it, so far as I could judge, fully entitled to the "Testimonial" from the State officials which graces its opening pages. It has a chapter, of thirteen pages, devoted especially to "Orange-culture," besides constant references throughout its pages to this branch of the rising industry and development of that delightful sub-tropical region. In the same chapter there is a note as follows: "Much the best work on the subject is Rev. T. W. Moore's 'Treatise and Handbook on Orange Culture in Florida,' of which a new revised and enlarged edition has just been published by E. R. Pelton and Co., 25, Bond Street, New York." Mention also occurs of a "Guide to Orange Culture" by "the Manville Brothers"—but I do not find a more precise indication.

J. HERSCHEL

Collingwood, August 26